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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,890	09/30/2003	Stalinselvaraj Jeyasingh	42P15884	8117

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EXAMINER

RAY, GOPAL C

ART UNIT	PAPER NUMBER
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2111

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/676,890	Applicant(s) JEYASINGH ET AL.	
	Examiner Gopal C. Ray	Art Unit 2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 19-21 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-12 and 19-21 is/are allowed.
- 6) ☒ Claim(s) 25 and 27 is/are rejected.
- 7) ☒ Claim(s) 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/13/04</u> . | 6) <input type="checkbox"/> Other: _____ |

1. Applicant's election with traverse of Group I, claims 1-12, 19-21 and 25-27 in the reply filed on 10/14/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicant should cancel non-elected claims 13-18, 22-24 and 28-30 in response to this office action. Claims 1-12, 19-21 and 25-27 are presented for examination.

2. The drawings filed on 9/30/03 are acceptable by the examiner. However, direct any inquiries concerning drawing review by the USPTO draftsman to the Drawing Review Branch at (703) 305-8404.

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Furthermore, all claims should be revised carefully to eliminate all grammatical errors and antecedent basis problems.

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 25 and 27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent 4,812,967 granted to Hirose et al. in view of US Patent 5,452,462 granted to Matsuura et al.

As per claim 25, the reference of Hirose et al. teaches, "a processor (Fig. 3, element 51); and memory (Fig. 3, element 54), coupled to the processor, to store

instructions, which when executed by the processor, cause the processor to identify one or more interrupt request lines that are coupled to one or more devices managed by a virtual machine" in Fig. 2 and col. 1, lines 6-9.

The reference of Hirose et al. fails to expressly teach, "... , configure one or more multiplex blocks to route interrupt request signals on the one or more interrupt request lines to an interrupt controller, and generate a request to transfer control to VM". However, the above features were well known to one of ordinary skill in the data processing art at the time the invention was made as evidenced by Matsuura et al. The reference of Matsuura et al. teaches the features in Fig. 4. Therefore, it would have been obvious to one of ordinary skill in the data processing art at the time the invention was made to modify the system of Hirose et al. to implement the above features to obtain the claimed invention because both the prior art systems are analogous to handling interrupts, the reference of Hirose et al. already teaches use of a multiplexer in Fig. 5, element 92 and one of ordinary skill in the data processing art at the time of the invention would have selected in accordance with circumstances without the exercise of inventive skill, the above features of Matsuura et al. in order the system to be compatible with a widely used standard and to allow the system to take the advantage of the many benefits provided by those features such as the ability to select a particular interrupt request from a group of interrupt requests.

As per claim 27, the claim is rejected for the same reason as discussed in the rejection of claim 25 with the exception of "the processor to restore a state saved during a previous operation". However, it would have been obvious to one of ordinary skill in the data processing art at the time the invention was made to modify the system of Hirose et al. to implement the above feature to obtain the claimed invention because the reference of Hirose et al. already teaches restoring feature in col. 8, lines 1-2 and

one would select the well known restoring feature in a specific application such as applicant's without the exercise of inventive skill for the desirable purpose of continuing the previous operation of the system after processing the interrupt.

6. Claims 1-12 and 19-21 are allowable over the prior art of record. Claim 26 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an Examiner's Statement of Reasons for Allowance:

The claimed invention is directed to "a system and an apparatus for managing interrupts in a virtual machine system". The examiner has done complete search and found no prior art of record, alone or in combination, teaches or fairly suggests the limitation, "each of the one or more multiplex blocks is to route an interrupt request signal received via a corresponding interrupt request line either to the interrupt controller or the VMM block depending on a current configuration value of said each of the one or more multiplex blocks" in combination with other claimed elements as claimed in independent claims 1 and 19. Dependent claims 2-12, 20 and 21 further limit the subject matter of the respective parent claims. As to dependent claim 26, the prior art of record, alone or in combination does not teach or fairly suggest the added limitation of the claim.

Any comments considered necessary by applicant must be submitted in response to this office action to avoid processing delays. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is urged to consider the references. However, the

references should be evaluated by what they suggest to one versed in the art, rather than by their specific disclosure.

The prior art submitted by applicant has been considered by the examiner and made of record in the file. If applicants are aware of any prior art better than those are of record, they are required to bring the prior art to the attention of the examiner. Applicants are also reminded that each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in 37 CFR 1.56. Applicants are advised to submit any information material to patentability in accordance with 37 CFR 1.97 and 1.98.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gopal C. Ray whose telephone number is (571) 272-3631. The examiner can normally be reached on Monday - Friday from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart, can be reached on (571) 272-3632. The fax phone number for this Group is (571) 273-8300.

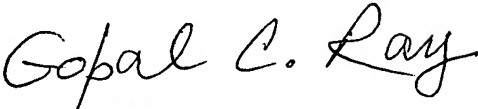
Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [**mark.rinehart@uspto.gov**].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35

U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC central telephone number is (571) 272-2100. Moreover, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lastly, paper copies of cited U.S. Patents and Patent Application Publications ceased to be mailed to applicants with office actions as of June 2004. Paper copies of Foreign Patents and Non-Patent Literature will continue to be included with office actions. These cited U.S. Patents and Patent Application Publications are available for download via Office's PAIR. As an alternate source, all U.S. Patents and Patent Application Publications are available on the USPTO web site (www.uspto.gov), from the office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests to restart a period for response due to a missing U.S. Patent or Patent Application Publications will not be granted.


GOPAL C. RAY
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